

Sugar Creek Lake - 2001 Data

Glacial Plains Region

Sugar Creek Lake is a 346-acre lake located in Randolph County. Owned by the City of Moberly, it is used as the city's drinking water reservoir. Sugar Creek's watershed is approximately 6,700 acres.

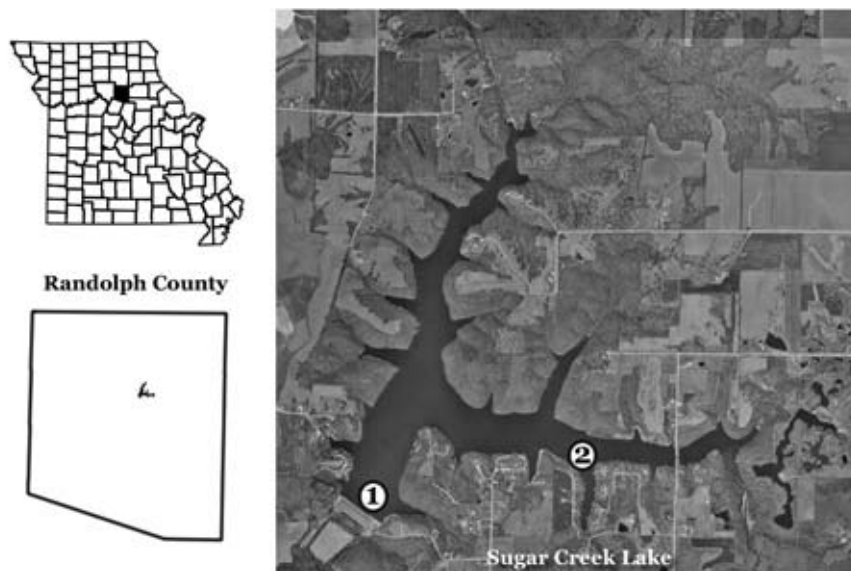


Figure 47. Location of Sugar Creek Lake and sample sites.

2001 Results

Figures 48 and 49 show how the parameters phosphorus, nitrogen, algal chlorophyll, inorganic suspended solids and Secchi transparency varied in Sugar Creek Lake during the 2001 sampling season. The descriptive statistics appear in Tables 22 and 23. A brief description of these results:

- Seven samples were collected from April 29 to September 20 at each of 2 sample sites.
- Samples from this year were comparable to the two samples from last year.
- Sites 1 and 2 were similar to one another, both in terms of water quality and pattern across the season. This may reflect homogeneous land cover across the lake's watershed. Site 2 had slightly higher ISS and phosphorus values, and slightly lower Secchi values.
- The chlorophyll to phosphorus ratio at Site 1 was high (0.96) on August 26 (Julian Day 238), indicating the potential for an algae bloom.
- Sugar Creek Lake was eutrophic for all parameters at both sites in 2001, based on geometric means.

Table 22. Descriptive statistics for Sugar Creek Lake, Site 1 – 2001.

Parameters	# of		Minimum	Maximum	Median
	Samples	Geometric Mean			
Secchi Transparency (inches)	7	38	25	52	43
Phosphorus ($\mu\text{g/L}$)	7	34	24	48	38
Nitrogen ($\mu\text{g/L}$)	7	631	500	880	610
Chlorophyll ($\mu\text{g/L}$)	7	18.4	8.3	34.5	22.0
ISS (mg/L)	5	3.0	1.7	7.4	2.6

ISS=Inorganic Suspended Solids

Samples were collected between April 29 and September 20

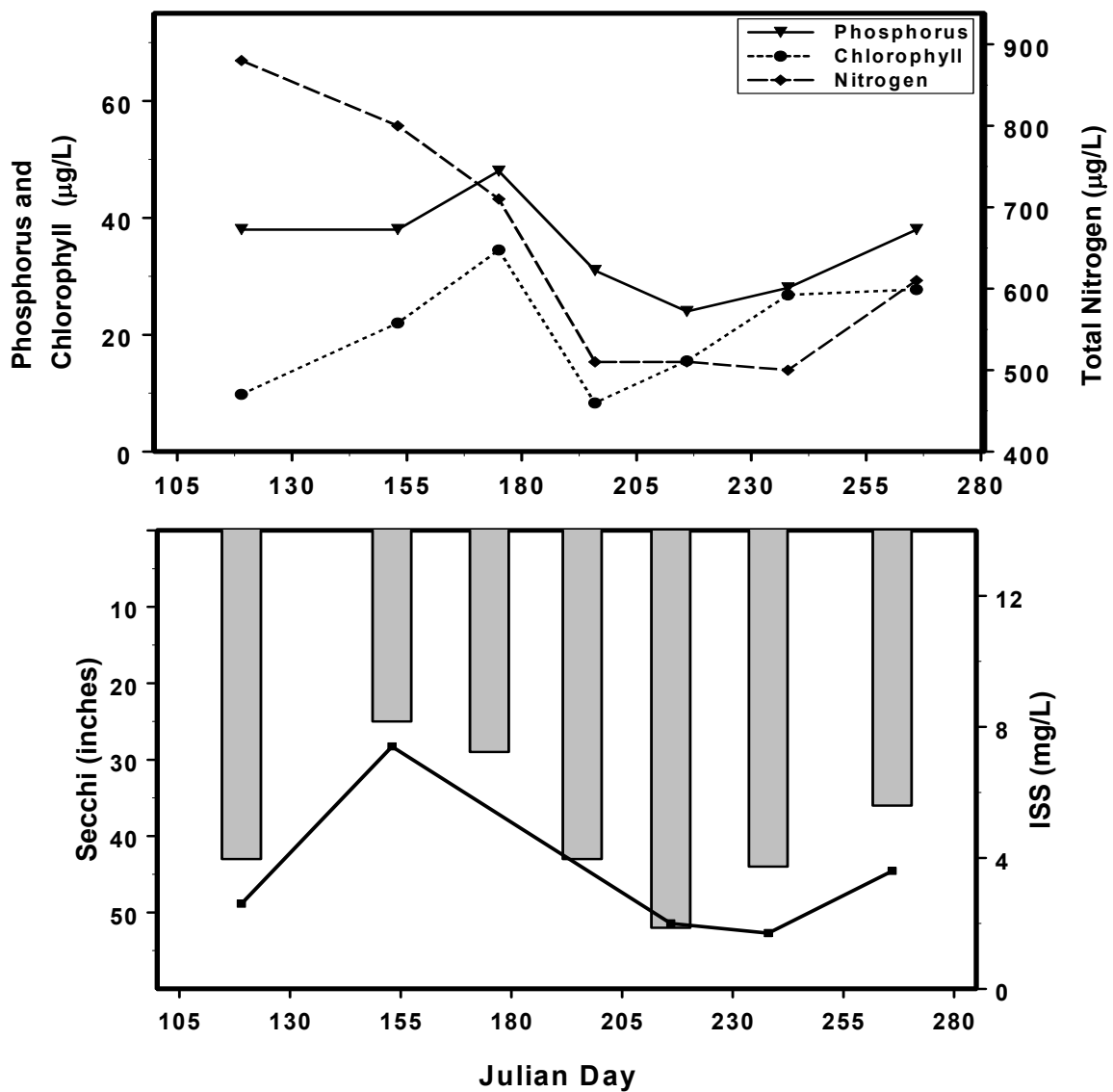


Figure 48. Seasonal fluctuations of parameters for Sugar Creek Lake, Site 1 – 2001. Bars represent Secchi, line represents ISS.

Table 23. Descriptive Statistics for Sugar Creek Lake, Site 2 – 2001.

Parameters	# of Samples	Geometric Mean	Minimum	Maximum	Median
Secchi Transparency (inches)	7	30	22	44	33
Phosphorus ($\mu\text{g/L}$)	7	44	34	62	45
Nitrogen ($\mu\text{g/L}$)	7	647	480	890	620
Chlorophyll ($\mu\text{g/L}$)	7	20.3	9.0	44.4	19.3
ISS (mg/L)	7	4.8	2.8	8.3	4.1

ISS=Inorganic Suspended Solids

Samples were collected between April 29 and September 20

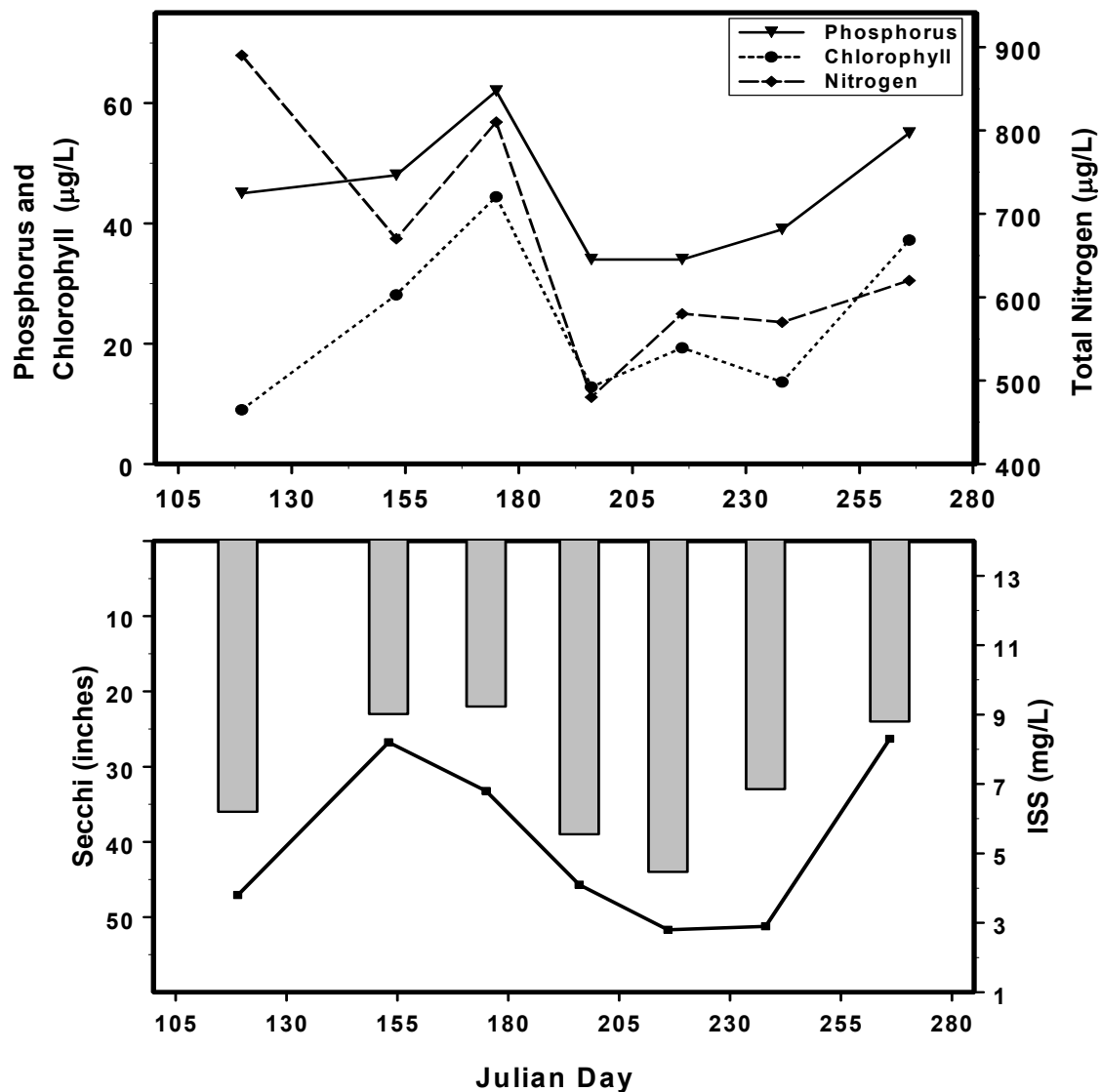


Figure 49. Seasonal fluctuations of parameters for Sugar Creek Lake, Site 2 – 2001. Bars represent Secchi, line represents ISS.